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- (71) Applicant: **SEAGATE TECHNOLOGY LLC [US/US]**
920 Disc Drive, Scotts Valley, CA 95066 (US).
- (72) Inventors: **KURTAS, Erozan**; 910 Bingham Street, Unit J, Pittsburgh, PA 15203 (US). **KUZNETSOV, Alexander, V.**; 6417 Kentucky Avenue, Pittsburgh, PA 15206 (US). **VASIC, Bane**; 4841 N. Valley View Road, Tucson, AZ 85718 (US).
- (74) Agent: **BORDAS, Carol, I.**; Seagate Technology LLC, 1251 Waterfront Place, Pittsburgh, PA 15222 (US).
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Declarations under Rule 4.17:

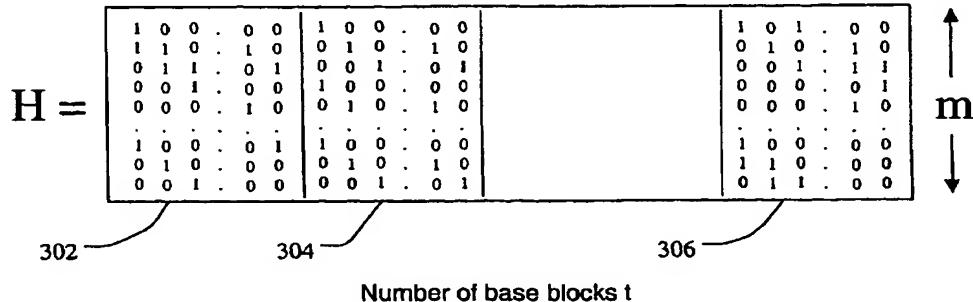
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS,*

[Continued on next page]

- (54) Title: A METHOD AND CODING APPARATUS USING LOW DENSITY PARITY CHECK CODES FOR DATA STORAGE OR DATA TRANSMISSION

Structure of the new LDPC codes

Parity check matrix: n - code length, k - number of user bits, redundancy r=n-k



Example: Kirkman 163: J=3, m=163, t=27, n=mt=4401

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- (57) Abstract: A method of generating low density parity check codes for encoding data includes constructing a parity check matrix H from balanced incomplete block design (BIBD) in which a plurality B-sets which define the matrix have no more than one intersection point. The parity bits are then generated as a function of the constructed parity check matrix H.



*MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent
(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent
(AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,
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CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H03M13/25 G06F11/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H03M G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BOND J W ET AL: "Constructing low-density parity-check codes with circulant matrices" INFORMATION THEORY AND NETWORKING WORKSHOP, 1999 METSOVO, GREECE 27 JUNE-1 JULY 1999, PISCATAWAY, NJ, USA, IEEE, US, 27 June 1999 (1999-06-27), page 52 XP010365561 ISBN: 0-7803-5954-2 paragraph '00II! ----- -/-	1-5

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
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- *&* document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Gerdes, R

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	MACKAY D J C: "Good error-correcting codes based on very sparse matrices" IEEE TRANSACTIONS ON INFORMATION THEORY, IEEE INC. NEW YORK, US, vol. 45, no. 2, March 1999 (1999-03), pages 399-431, XP002143042 ISSN: 0018-9448 page 402, paragraph IIA ----	1-18
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 02/06897

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